

Do Public Lands Constrain Economic Development in the Adirondack Park?

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Abstract

For more than a century, the impact of public land ownership on local economies has been a hotly debated topic in the United States. While much of this debate has focused on the western U.S., the issue remains highly contentious in New York's Adirondack Park, a nearly 10,000 square mile reserve divided almost equally between private and state-owned lands. Recent large land purchases by New York State for "forever wild" land protection have crystallized the debate among year-round residents, tourists, property rights activists, and the conservation community. This study examines the influence of state land ownership at the town level on five economic indicators. Results show that the percentage of state land, the proportion of land zoned for high intensity development, and the average distance to a large metropolitan center explain only 22% of the variance in the five indicators of economic health. An increase in state lands within a municipality is associated with a small increase in per capita income, median household value, and a reduction in unemployment and poverty. Yet somewhat contrarily, it is also associated with a small decrease in household income. This study strongly suggests that state ownership of land within towns inside the Adirondack Park Blue Line is not the primary determinant of a municipality's economic well-being.

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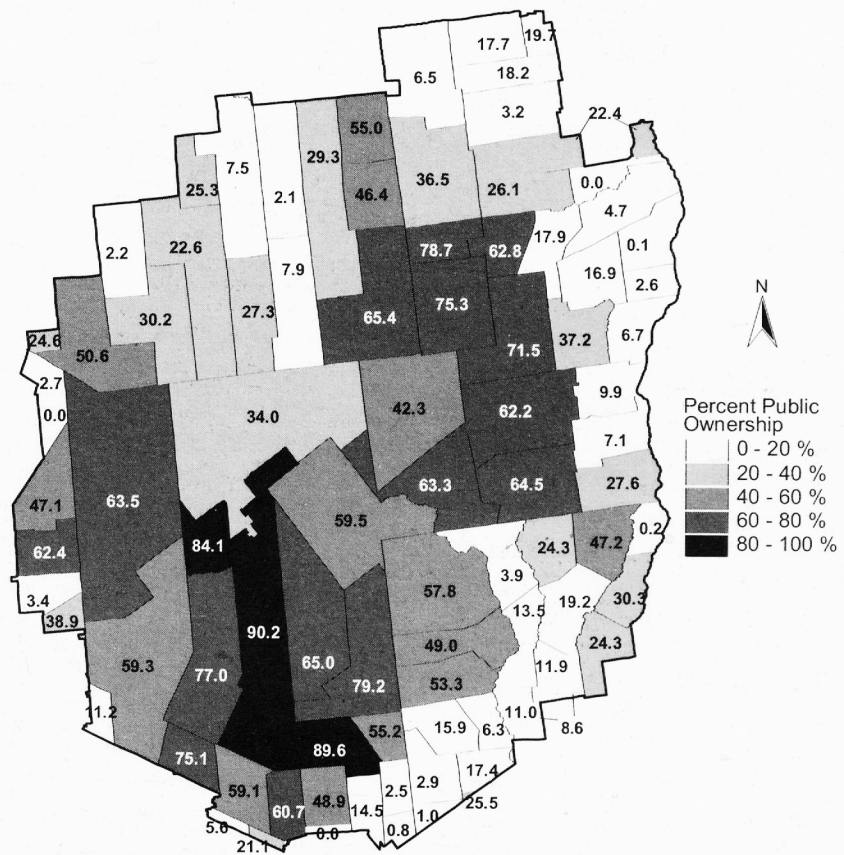


Figure 1: Percent State Land in 1998 (Adirondack Park Agency 1998)

Introduction

The fundamental argument against public ownership of lands is that it inhibits 'rational' use of valuable natural resources and constrains economic development. Government, on the other hand, has used state lands to generate revenue (fees for timber, mining and grazing), to pay soldiers with land grants, to encourage settlement and infrastructure development (The Homestead and Pacific Railroad Acts of 1862), and to preserve ecologically and culturally important areas in trust for all citizens now and in the future (Bureau of Land Management, United States Forest Service,

and the National Park Service). The debate over public lands is most intense in the 12 most western states, where federal and state governments own nearly 60% of the land surface area (56% excluding Alaska, where 95% of all lands are government owned) (National Wilderness Institute 1995).

In New York State, 6,875 square miles (17,806 km²) or 13% of the land is publicly owned (NYS Department of Environmental Conservation 2002). Of that area, 4,716 square miles (12,214 km²) is contained within the borders of the Adirondack Park, comprising 48% of the total Park area (Adirondack Park

Agency 1998). This paper combines GIS data on land ownership and land cover within each Adirondack Park municipality, with municipality level indicators of economic welfare drawn from the 1990 federal census, to examine whether or not state ownership of land acts as a constraint on economic development and citizen welfare.

Brief history of the Adirondack Park

The Adirondack Park represents one of the oldest managed wilderness areas in the country. It covers approximately 10,000 square miles (24,280 km²) and is composed of a complex patchwork of land parcels of varying size and shape. Today, 48% of the total area of the Park is publicly owned (Figure 1). Currently, 130,000 year-round residents share the region with 42 peaks higher than 4,000 feet above sea level, 2,759 lakes and ponds, more than 30,000 miles of rivers, brooks, and streams, and an abundance of wildlife that includes all large mammal species native to the area other than the wolf (McKibben 1992).

Unregulated logging in upstate New York to support the lumber, paper, leather tanning, and iron mining industries reached a fever pitch in the 20 years that followed the end of the civil war. By 1885 the State Legislation was so concerned about the rate of forest loss and

the potential for significantly reduced water flows in the Hudson River and Erie Canal, the major upstate transportation corridors of the day, that they were moved to set aside forest lands within the state as a protected Forest Preserve. In 1892, the Forest Preserve was significantly enlarged by legislation establishing the Adirondack Park. Though much of the land within the original 'Blue Line' that defines the boundary of the Park was privately owned at the time, the State assumed that eventually it would acquire all parcels inside the Park. Initially, the State managed and cut timber on Forest Preserve lands. However in 1895, during the New York State constitutional convention, delegates added a new clause to the law of 1892. From that time until today, it reads:

"The lands of the State, now owned and hereafter acquired, constituting the Forest Preserve, as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold, or exchanged, nor shall the timber thereon be sold, removed or destroyed." (Schaffer 1986)

Since the establishment of the Park, New York State continues to purchase parcels of private land as they come up for sale. Throughout the 1950s and 1960s, tourism in the Adirondacks was

on the rise, and many visitors began to purchase land to build second homes. With completion in 1967 of Interstate 87 that connects Montreal and Albany via the eastern edge of the Adirondacks, many conservationists and state officials became concerned that the highway would accelerate real estate development and risk devastating the very wildness and natural beauty that attracts tourists and second-home owners to the Park. (Terrie 1997)

In September of 1968, Governor Rockefeller established the Temporary Study Commission on the Future of the Adirondacks. The findings indicated "development is taking place in the Adirondack Park which threatens the accomplishment of the basic purpose of Article XIV. If such development is left uncontrolled...the purposes of Article XIV may be irreparably and irreversibly compromised" (1971). As a result the legislature created the Adirondack Park Agency (APA).

In 1971, the new Adirondack Park Agency had two primary functions. The first was to create the State Land Master Plan to provide guidelines for the NYS Department of Environmental Conservation to manage state land. The second, more controversial function, was to create an Adirondack Park Land Use and Development Plan to oversee the use of private lands. The Adirondack Park Agency delineated Adirondack lands into 14 classifications (Table 1), each with its own regulations and usage possibilities. Six classifications apply to privately owned land. The APA administers and enforces these guidelines under the Adirondack Park Land Use and Development Plan. Starting in 1973, the APA required landowners of private land inside the Blue Line wishing to subdivide land, build principle dwellings, or make substantial additions to an existing structure to obtain a permit. The other eight classifications cover state-owned public land and are managed by the DEC under the State Land Master Plan. Together the two plans define and delineate land uses,

Table 1. Land classes in the Adirondack Park

Ownership	LCCD	Label	Development intensity
Private	1	Hamlet	High
	2	Moderate Intensity	Moderate – 500 buildings/sq m
	3	Low Intensity	Moderate – 200 buildings/sq m
	4	Rural Use	Low – 75 buildings/sq m
	5	Resource Management	Low – 15 buildings/sq m
	6	Industrial Use	High
			Use intensity
Public	7	Wilderness	Low
	8	Canoe Area	Low
	9	Primitive	Low
	10	Wild Forest	Low
	11	Intensive Use	High
	12	Historic	High
	13	State Administrative	High
	14	Pending Classification	N/A
	15	Water	N/A

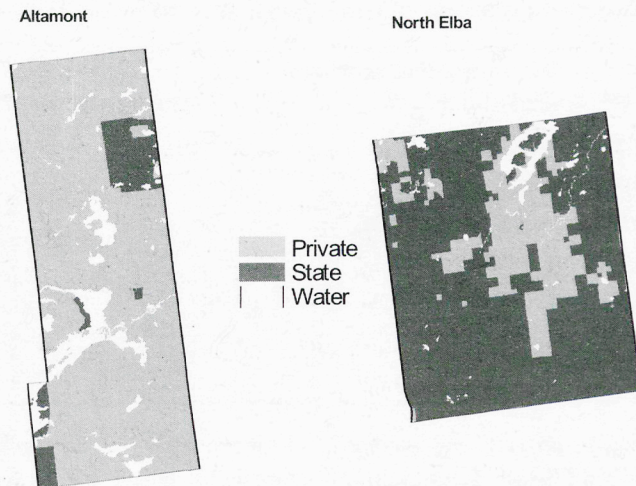
management, and zoning categories for the entire Adirondacks. This regulation and zoning system has been at the center of almost all contemporary Adirondack debates, especially those regarding conservation versus development issues.

In the late 1990s, large tracts under the private land classification "resource management" (15 buildings per square mile) were for sale. Some groups lobbied New York State to purchase and protect the land and others promoted development opportunities to improve local economies and increase the local tax base. Once purchased by the state, the land would no longer be available for development or forest management. On the other hand, once developed, the land would never be used for public access and recreation.

NYS purchase of land for protection has become contentious among year-round residents, tourists, property rights activists, and the conservation community. The Adirondack Conservation Council, a sportsman association in the Adirondacks, believes that once land is "locked up as forever wild," jobs are lost and the general public is denied access (Adirondack Conservation Council 1997). The Blue Line Council, an Adirondack property rights group also maintains that more land purchased by the state will result in the loss of jobs. However, environmental groups contend that protecting land increases recreational opportunities thus generating jobs for the region.

"There is absolutely no correlation between the amount of Forest Preserve lands and job loss or economic performance. Look at this: The Town of North Elba, home of Lake Placid, is often held up as one of the shining examples of economic prosperity in the Adirondacks. Yet, nearly 80 percent of the land in North Elba is in the Forest Preserve. The Town of Altamont, home of Tupper Lake, is often held up as one of the examples of economic depression in the Adirondacks (Figure 2). Yet, just 10 percent of the land in Altamont is Forest

Figure 2: Towns of North Elba and Altamont showing state lands (APA 1998)



Preserve." (Residents Committee to Protect the Adirondacks 1998)

Ensuing arguments about socio-economic disparity and land ownership have led many to question whether a correlation between the amount of state land and economic health across the region exists. The main objective of this study is to determine if any correlations exist between land ownership and socio-economic conditions among the towns wholly located inside the Adirondack Park Blue Line.

Influence of land cover and land ownership on economic development indicators

While some residents travel outside the Park for employment, Northup (1997) shows the percent of workers employed at home or less than 15 minutes from home at 51.6% — the highest percentage in New York State — for the eight county Adirondack Region. State and local government provide almost 33% of employment, tourism accounts directly for at least 17% of all employment, and close to 7% is based in the paper, lumber and wood products sectors, compared to about 2% for the US as a whole. For this study we assume that the economies of municipalities within the Adirondack Park are derived primari-

ly from individuals and businesses extracting revenue from natural resources and service opportunities available within each municipality.

From this we can argue that the wealth of a municipality is to a large extent influenced by the area of lands zoned for development, and that the proportion of land within a municipality that is privately owned is thus a fungible asset that can generate capital (Table 1). If the first assumption is true then we might expect a positive linear relationship between the percentage of land zoned for business and housing development, and indicators of economic health within a municipality, controlling for population density and distance from markets. We might also expect the opposite to be true for the percentage of land set aside as by the state as Forest Preserve. However, the relationship between public lands and positive economic indicators is more complex, as these areas are often attractive tourist destinations, and tourism is an important component of the economies of many Adirondack towns.

Though a broad range of economic attributes can be used to assess the aggregate economic welfare status of communities, in this study we use the level of unemployment, median household income, per capita income, percentage of

Table 2. Expected direction of the relationship between land use zoning and economic health

Landuse Economic indicator	Development intensity			Use intensity	
	High	Moderate	Low	High	Low
Unemployment	--	-	+	-	+
Median household income	++	+	-	+	-
Per capita income	++	+	-	+	-
Percentage in poverty	--	-	+	-	+
Median house value	++	+	-	+	-

the population in poverty, and median house value as indicators. If we assume that public and private lands zoned for recreational use or intensive development are likely to be positively correlated with the above indicators of economic health then we would map out the expected sign of coefficients for land use classes when regressed against economic health indicators (Table 2).

In addition we might expect that the presence of water in the landscape is associated with high median household income and median house value, because access to lakes and rivers and water-front property is attractive for home owners (Holmes 2001). Lastly, we expect that population size is positively correlated, and distance to large markets (Syracuse, Albany, Montreal and New York) negatively correlated, with economic health.

Methods, variables and tests

To look at how land use zoning influences economic health of communities located within the 'Blue Line' of the Adirondack Park, we draw on spatial information from the Adirondack Park Agency (APA) 1998 Land Use Classification Plan, the Northern Forest Lands Inventory (NFLI), and household level socio-economic data from the 1990 decadal census conducted by the U.S. Census Bureau.

As the Adirondacks are sparsely populated, census blocks for the region are delineated at the town level, using town boundaries. The Adirondack Park includes land within a total of 92 towns.

However, only 62 of these towns lie completely inside the Blue Line, and only these were considered in the analysis.

Dependent variables

We include five indicators of economic health of Adirondack Park towns as dependent variables: percent unemployment, percent poverty across all ages, per capita income, median house value, and median household income. Dependent variables were drawn from the 1990 decadal census of the U.S. Census Bureau.

Explanatory variables

Explanatory variables include the percentage of state owned land per town, the percentage of private land zoned for high intensity building development, population size, and the average distance by road to a set of outlying metropolitan areas (New York City, Montreal, Syracuse, and Albany).

Tests

To normalize the binomial distributed percentage variables, an arcsine-root transformation ($p' = \arcsine(\sqrt{p})$) was applied to each variable prior to parametric analysis. We estimated Pearson partial correlation coefficients among right-hand side variables and generally found that they fell below 0.50, except between population in 1990 and the proportion of land zoned for high intensity development (0.601, $p < .001$). Despite multicollinearity we left those variables in the regressions because they matter for policy purposes.

We carried out and report the results of five regressions, one for each town-level economic health indicator. Table 4 contains the results of those tests.

Results

Analysis of the influence of zoning regulations and other factors on the economic welfare of municipalities within the Adirondack Park Blue Line shows that the percentage of state land, the proportion of land zoned for high intensity development, and the average distance to a large metropolitan center contribute little to explaining the variance in economic indicators (<22% of variance explained by the independent variables), and show contrary and unexpected effects. For example, with all other factors held constant, though an increase in state lands within a municipality is associated with increase in the level of four development indicators it is also associated with a decrease in household income. Viewed in aggregate the data suggest that municipalities within the Blue Line that contain a large proportion of protected public lands in relation to those zoned for economic development are not at an economic disadvantage. That said it is also worth noting that, as expected, the percentage of land zoned for high intensity economic use is correlated with increases in income and house value and decreases in unemployment and poverty. Equally interesting, municipalities closer to metropolitan centers appear to have higher per capita income and house values and lower levels of poverty, yet contrarily

Table 3: Basic Town Statistics

Town	Population	Sq_Km	% Private	% State	% Water	Distance in Kilometers to			
						NYC	Albany	Syracuse	Montreal
Altamont	6199	337	82.7	7.9	9.3	522	272	266	217
Arietta	300	853	6.1	90.2	3.7	396	146	154	335
Ausable	2870	113	89.1	0.0	10.8	485	235	407	131
Benson	168	215	9.7	89.6	0.7	353	103	216	320
Black Brook	1556	348	70.6	26.1	3.3	481	231	345	153
Bleecker	515	154	47.3	48.9	3.8	346	96	195	368
Bolton	1855	222	54.6	19.2	26.2	363	113	286	254
Brighton	1511	214	47.5	46.4	6.1	508	258	309	199
Caroga	1337	140	32.7	60.7	6.6	350	100	180	361
Chester	3465	225	92.6	3.9	3.5	379	129	302	238
Chesterfield	2267	272	71.4	4.7	23.9	493	243	415	140
Clare	78	250	96.2	2.2	1.6	611	361	213	208
Clifton	917	390	59.4	30.2	10.4	563	313	225	233
Crown Point	1963	203	86.2	7.1	6.6	422	172	344	199
Dannemora	5232	171	71.6	18.2	10.2	525	275	356	126
Day	746	171	76.0	15.9	8.1	364	114	228	304
Dresden	561	147	66.4	30.3	3.3	394	144	317	236
Duane	152	202	40.9	55.0	4.1	526	276	294	182
Edinburg	1041	170	86.4	2.9	10.7	351	101	215	317
Elizabethtown	1314	213	61.0	37.2	1.7	447	197	370	170
Essex	687	96	81.2	2.6	16.2	476	226	398	157
Fine	1813	438	47.5	50.6	1.9	585	335	203	255
Franklin	1016	453	60.3	36.5	3.1	505	255	316	166
Hadley	1628	105	90.2	6.3	3.5	361	111	255	284
Hague	699	207	33.3	47.2	19.5	393	143	316	226
Harrietstown	5621	556	27.0	65.4	7.6	489	239	300	183
Hope	358	108	42.4	55.2	2.4	354	104	217	310
Horicon	1269	185	67.3	24.3	8.4	380	130	303	237
Indian Lake	1481	689	35.2	59.5	5.3	415	165	226	289
Inlet	343	172	9.3	84.1	6.5	471	221	171	345
Jay	2244	177	81.4	17.9	0.7	467	217	352	156
Johnsburg	2352	535	40.9	57.8	1.3	387	137	249	261
Keene	908	416	28.0	71.5	0.5	452	202	336	171
Lake George	3211	88	76.9	11.9	11.3	347	97	270	265
Lake Pleasant	887	512	29.8	65.0	5.2	389	139	187	305
Lewis	1057	221	82.8	16.9	0.4	458	208	381	152
Long Lake	930	1164	56.4	34.0	9.6	450	200	240	251
Minerva	758	411	34.4	63.3	2.3	400	150	252	273
Morehouse	106	504	20.8	77.0	2.2	395	145	180	345
Moriah	4884	188	81.6	9.9	8.5	437	187	359	190
Newcomb	544	582	54.6	42.3	3.1	429	179	262	304
North Elba	7870	401	21.6	75.3	3.1	475	225	314	184
North Hudson	266	494	36.3	62.2	1.5	412	162	335	201
Northampton	2705	90	58.0	2.5	39.6	344	94	207	324
Ohio	880	799	38.3	59.3	2.4	415	165	128	364
Piercefield	285	288	66.6	27.3	6.1	532	282	256	227
Putnam	477	92	94.0	0.2	5.8	406	156	329	224
Santa Clara	311	148	61.8	29.3	8.9	518	268	280	212
Saranac	3710	496	96.2	3.2	0.6	529	279	354	130
Schroon	1721	291	29.9	64.5	5.7	399	149	321	214
St. Armand	1318	370	19.3	78.7	2.0	490	240	311	172
Stony Creek	670	225	45.5	53.3	1.2	376	126	270	278
Stratford	586	199	38.7	59.1	2.2	378	128	147	368
Thurman	1045	240	49.3	49.0	1.7	392	142	247	266
Ticonderoga	5149	229	65.0	27.6	7.4	409	159	331	213
Warrensburg	4174	168	84.2	13.5	2.3	356	106	279	259
Waverly	1068	327	96.3	2.1	1.5	550	300	264	194
Webb	1637	1250	29.6	63.5	6.9	480	230	153	363
Wells	706	462	19.8	79.2	1.1	367	117	230	297
Westport	1446	174	80.3	6.7	13.0	455	205	377	170
Willsboro	1736	189	57.3	0.1	42.6	491	241	413	149
Wilmington	1020	170	36.8	62.8	0.4	475	225	334	102

Table 4. Results of multivariate regression analysis

	Per Capita Income	Median Household Income	Median House Value	% Unemployment	% Poverty
	$R^2=.105$ $p=.169$	$R^2=.076$ $p=.334$	$R^2=.213$ $p=.008$	$R^2=.130$ $p=.090$	$R^2=.115$ $p=.132$
Percent State Land	.084 $p=.538$	-.177 $p=.202$	.078 $p=.541$	-.026 $p=.846$	-.271 $p=.048$
Percent High Intensity Use	.333 $p=.042$	.091 $p=.580$	.193 $p=.203$	-.023 $p=.886$	-.308 $p=.058$
Population in 1990	-.177 $p=.270$	-.074 $p=.647$	.039 $p=.794$	-.251 $p=.115$	.164 $p=.302$
Avg Distance to Metropolitan Area	-.153 $p=.248$	.156 $p=.248$	-.401 $p=.002$	-.223 $p=.090$	.020 $p=.876$

more distant towns have lower unemployment and higher household income. These data show that the influence of land use zoning and proximity to markets have ambiguous effects on economic welfare, effects that both increase and decrease the wealth of households within individual municipalities.

Discussion

As the regression coefficients were all small and largely statistically insignificant, results from this study strongly suggest that the proportion of state land ownership within towns inside the Adirondack Park Blue Line is not the primary determinant of a municipality's economic well-being. The influence of public land on economic indicators of well-being is ambiguous in that an increase in state lands is related to a small improvement in four of the indicators but a decline in household income. The proportion of land zoned for high intensity use, in contrast, has a small but positive influence on all five economic indicators. Somewhat contrarily therefore, these results show that within an average Adirondacks Park town an increase in the area of state owned lands and land zoned for high intensity use both result in small but positive changes in indicators of economic well-being.

Based on these findings we can conclude that other historical or contemporary factors must be structuring the economies of Adirondack towns and that determining what drives these indicators of economic well-being warrants further study. That said, several results may be explained anecdotally. Towns farther from markets generally have a higher number of retirees and second-home or seasonal residents that would increase median house value while the seasonal economies of these towns contribute to high unemployment rates. The genesis of individual towns or hamlets within towns may shed some light as to why different towns succeed in this now larger service based economy. Towns that were traditionally "resort" towns were founded on large natural lakes, and continue to attract people as visitors. Towns based on extractive industry are still reeling from economic loss and decline and may not yet have capitalized on a service-based economy. Perhaps different communities in the Adirondack Park are affected differently by areas outside the Blue Line: Vermont to the east; Albany, Utica, and Syracuse to the south; Tug Hill Plateau, Lowville, and Watertown to the west; and the St. Lawrence River Valley to the north. The mixed results of

this preliminary analysis most likely reflect the kaleidoscope of past and present economic drivers found inside the Blue Line.

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